# policy studies

*#13*

## *Economic statistics in Ukraine*

*Effective decision making in both government and business require quality economic statistical data, as well as skills in interpreting and using it. In this issue, we present a review of Ukrainian statistics, including the basic principles for calculating the most important indicators used in economic analysis.*

*Our analysis allows us to conclude that the State Statistics Committee, the National Bank of Ukraine, and the Finance Ministry have made significant progress in introducing international statistical standards. However, procedures for disseminating data still need to be put in place.*

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# Foreword

In this issue, we present a review of Ukrainian statistics—in particular, the principles of calculating the most important statistical indicators for economic analysis.

Our research allows us to conclude that the State Statistics Committee, the National Bank of Ukraine, and the Finance Ministry have made significant progress in introducing international statistical standards. However, procedures for publicising data which would be useful for the public still need to be put in place.

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In our research, we used the following sources:

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- bulletins of the National Bank of Ukraine;
- publications of the UN Statistical Committee, Eurostat, Organisation for Economic Development and Collaboration, and the International Monetary Fund.

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# Introduction

***The State Statistics Committee of Ukraine (Derzhkomstat) has endeavoured to introduce international statistical standards in its work. However, little has been done to publicise the outcome. Derzhkomstat has not presented a consistent methodology of processing statistical data. Due to the lack of transparency, users doubt the creditworthiness of Ukrainian statistical data. The goal of our research was to analyse changes in Ukrainian statistics from the point of view of users***

## Users and compilers

*Users of statistical data are government, business, and the public*

Economic statistics entails gathering, systematising, and interpreting discrete quantitative data which describe economic events. The output of statistics is a set of aggregated indicators that allows monitoring the general economic situation and developments in particular sectors. Statistical activities also include drawing conclusions regarding the growth of the national economy that should be considered in the decision-making process.

The users of statistical data are the government and business sectors, and the public. The government uses statistical data in the policy-making process to draw inferences regarding economic development trends. Businesses decide on investment projects based on statistical conclusions regarding economic development potential. The public requires statistical data to initiate or support their discussion of societal problems.

The mission of a statistical agency should be to provide high-quality, accurate, and client-oriented statistical services, in order to encourage research activities and public discussions, as well as ensure effective decision making. Statistical agencies are also responsible for coordinating the activities of other compilers of statistical data, and for delivering statistical data to the users.

The prime statistical agency in Ukraine is the State Statistics Committee. Statistical data is also compiled by the National Bank of Ukraine (NBU) and the Finance Ministry. The NBU runs the monetary, banking and balance-of-payments statistics; the Finance Ministry compiles the public finance accounts.

# International standards

*Statistical authorities must be independent, and the methodology of accounting should be transparent*

Users consider statistical data credible if statistical authorities are independent and the methodology of calculating statistical indicators is transparent.

In its documents, the UN defines the following criteria for the independence of statistical authorities:[1]

- Official statistical data is processed and conveyed to users by official statistical agencies in full.
- The top authorities of statistical agencies can choose the methods and procedures for collecting, processing, storing, and presenting data only on the grounds of professional reasoning.
- Statistical agencies have the authority to comment on misleading interpretation or misuse of statistical data by users—in particular, the government.

The UN develops and publishes standard methods for collecting, processing, and disseminating statistical data that take into account the needs of state administration and macroeconomic analysis. In 1993, international organisations under the aegis of the UN Statistical Committee prepared successive version of the System of National Accounts (SNA), which serves as a basis for calculating the most important macroeconomic indicators. Using proper methodologies, this helps to compare macroeconomic time series across different countries.[2]

The UN and Eurostat develop standard classifications for types and subjects of economic activities. Classification is an important instrument in the process of preparing data, as it allows aggregating discrete data and calculating aggregated indicators (for example, price indices by economic sector). To provide for cross-country analysis, international organisations aim to standardise classifications.

The International Monetary Fund (IMF) developed standards for disseminating statistical data. The Special Data Dis-

[1] *UN Fundamental Principles of Official Statistics.* UN Statistical Committee (1994)

[2] System of National Accounts, commissioned by the European Communities, International Monetary Fund, Organisation for Economic Cooperation and Development, United Nations, and the World Bank (1993).

semination Standard of 1996 is the standard that is used most widely. It envisions disclosing data (in particular, via the Internet) which are valuable for foreign investors. Besides, the IMF proposed its own methodology for organising public finance, monetary, and balance-of-payments accounts.

## Differences between statistics in planned and market economies

Over a long time, Ukrainian statistics developed in an environment closed to international experience. Before the 1980s, two statistical systems were developed—the system of material production used in the Soviet Union, and the system of national accounts, introduced in European and North American countries after the Second World War.

### *System of material production (SMP) versus the system of national accounts (SNA)*

| SMP | SNA |
|---|---|
| The economy is divided into material and non-material spheres. Value added created in the non-material sphere is not included in the national income. | The economy is viewed as an aggregate, where all economic sectors produce the national income. |
| The economy is disaggregated into sectors (heavy and light industries, agriculture etc.). | The economy is divided into institutional sectors (sectors of financial and non-financial corporations, central government, households, and non-profit institutions serving households). |
| Physical volume indicators predominate. | Indicators in value terms predominate. |
| Indicators are presented as material resource flows rather than financial flows. | Economic processes are presented by means of financial flows, which are shown in financial accounts. |
| Gross profit, savings, and loans are not reported. | SNA is a system of aggregated indicators that gives an integral picture of the macroeconomic situation in a country. |

The system of material production fit the requirements of a planned economy for description and analysis. The aim of Soviet state economic policy was to manage material resource flows, plan production indicators, and control how individual enterprises fulfilled the plan. As a result, statistics encompassed *all* enterprises in the economy.

In a market economy, managers of firms and heads of households make their decisions independently, based on their own interests. Under these conditions, the goal of economic policy is to create stimuli and establish rules of the game that orient economic agents' activities upon fulfilling societal objectives. Policymaking in a market economy requires being able to have an overall picture of the country's economic development.

## Major problems of Ukrainian statistics

*Problems of Ukrainian statistics relate to the transition from the system of material production to modern international standards*

The majority of problems in Ukrainian statistics relate to the transition from the system of material production to modern international standards:

- As previously, the source of primary information for Derzhkomstat is statistical reports of all enterprises. As more firms emerge, this method imposes higher costs—both on Derzhkomstat and on enterprises. Besides, the information obtained becomes less credible, because the statistics cannot possibly encompass all newly created firms. In international practice, sample enterprise surveys are widely used.
- In the planned economy, more weight was given to annual indicators, while cumulative monthly data was used to monitor the dynamic of fulfilling the annual plan. In a market economy, discrete quarterly data is commonly used. Thus, Derzhkomstat faces the challenge of converting from cumulative to quarterly indicators.
- A large volume of debts accumulated in the economy leads to significant discrepancies between indicators calculated on accrual-basis accounting and on cash-basis accounting. This undermines the integrity of the statistical data.
- In the planned economy, statistics were mostly based on physical volume indicators, as prices in the planned economy were not informative.

The institutional obstacle to implementing statistical reform in Ukraine is the poor capacity of Derzhkomstat to develop methodology, for in Soviet times methodology was worked out and handed down from Moscow.

## Assessing Ukrainian statistics from the users' standpoint

We propose the following criteria to assess Ukrainian statistics from the users' standpoint:

- **RELIABILITY.** Doubts regarding the reliability of data arise due to (1) frequent adjustments of annual data while related quarterly data remains unchanged; (2) nontransparent methodology for calculating statistical indicators; (3) inaccessibility of information regarding individual components of aggregated indicators. To ensure reliability, Derzhkomstat should start regularly publishing manuals which describe the methodology of computing statistical indicators. Moreover, the agency should inform users regarding changes in methodology.

- **QUALITY**. Ukrainian statistics do not contain all the data needed for macroeconomic simulation and decision making. They reflect some economic elements only partially (for example, wage statistics do not encompass small enterprises). The lack of collaboration between statistical agencies (Derzhkomstat, NBU, and the Finance Ministry), which sometimes use different methodologies for processing data, worsens the quality of statistical data.

- **TIMELINESS**. Derzhkomstat generally adheres to a schedule for completing its statistical work, but data still reaches users late, due to the lack of efficient means for disseminating information.

- **ACCESSIBILITY**. Ukrainian statistics are not available to a wide circle of users, let alone businesses. Derzhkomstat has not developed a policy or system for disseminating information. Data from Derzhkomstat is sent in hard copies to a limited number of users, primarily government workers. The Finance Ministry does not disclose information regarding public finances. The NBU is the only agency maintaining a web page where banking and monetary statistical indicators can be found.

### *Efforts to assess the informal ("shadow") economy*

*A large share of informal activities in transition economies worsens the quality of statistical data. According to the UN 1997 Report on Human Development in Europe and the CIS, the share of the informal economy amounted to approximately 25% of GDP in Russia, 30% of GDP in Hungary, and over 50% of GDP in Moldova and Ukraine.*

*The informal economic sector in Ukraine exists due to (1) activities of unregistered enterprises (in particular, individual subsidiary holdings) and (2) underreporting by registered enterprises.*

*Statistical agencies in Ukraine partially consider the activities in the informal economic sector:*

- *In household surveys, Derzhkomstat calculates indicators regarding individual subsidiary holdings.*
- *In September 1999, Derzhkomstat analysed informal employment activities by the methodology of the International Labour Organisation. According to the survey, 12.9% of people aged 15–70 work in unregistered enterprises.*
- *In calculating the balance of payments, the NBU assesses volumes of informal foreign trade.*
- *Derzhkomstat adjusts the GDP balance by production and consumption for the volume of the informal economy.*[3]

*The following steps can help to incorporate informal economic activities in official statistics on a larger scale:*

- *using sample surveys, which would include unregistered enterprises more actively; and*
- *improving the methodology for incorporating the informal economy in overall statistics.*

# Vectors of statistical developments

In our opinion, statistics in Ukraine should develop in the following major directions:

[3] The adjustment amounted to about 12% in 1995.

- The use of surveys should broaden, while statistical reporting forms should become simpler. As a result, the quality of data will improve (statistics will incorporate a greater variety of economic entities) and the cost of obtaining primary information will decline.
- Derzhkomstat, the Finance Ministry, and the NBU should collaborate more intensively on creating consistent methodologies and an information dissemination system.
- Regional statistics should be expanded. Derzhkomstat presents the majority of its main indicators by regions, but regional data are still lacking on the balance of household incomes and expenditures, as well as regional national accounts.
- International classification systems and registers should be introduced. After that, all statistical agencies will use common accounting, registering, and processing techniques.
- Statistical data should be reported and disseminated according to international standards. In particular, the IMF Special Data Dissemination Standard (SDDS) should be introduced.
- Derzhkomstat should maintain a web-page and continuously update it. Derzhkomstat should put there all data which is to be disclosed according to the Law "On state statistics".[4]

[4] Revision dated 13 July 2000.

# System of National Accounts

***The System of National Accounts (SNA) is the international accounting system that represents the economic situation in a country. The SNA aggregates financial and non-financial flows, resources, and their use in the major economic sectors. The State Statistics Committee launched the introduction of the SNA in 1993***[5]

The basic indicator in the SNA is the gross domestic product (GDP). GDP is the value of all final goods and services produced in the country in a given year.

## *GDP by production, income, and expenditures*

Gross domestic product (GDP), market prices

| Production | Income | Expenditures |
|---|---|---|
| Gross output in market prices by economic sector, excluding intermediate consumption | Labour payments | Private consumption |
| | Net profit and mixed income | Public consumption |
| | | Gross investments |
| | Taxes on production and imports (excluding subsidies) | Net exports(exports minus imports) |
| | Consumption of fixed capital | |

## Methods of GDP calculation

*SNA presents GDP three ways: GDP by production, by income, and by expenditures*

The SNA has three methods of calculating GDP: GDP by production, by income, and by expenditures. GDP by production reflects the creation of value added, which is the source of income. GDP by income reflects the distribution of

[5] Derzhkomstat works with the following SNA accounts: goods and services, production, generation of income, allocation of primary income, secondary distribution of income, redistribution of in-kind income, use of income, capital, and "rest of the world". Accounts cover the following sectors: non-financial corporations, financial corporations, general public administration sector, household farms, and non-profit organisations serving household farms. See *Natsional'ni rakhunky Ukrainy za 1998 rik. Statystychnyi zbirnyk* [National accounts of Ukraine for 1998: Statistical compendium] (Kyiv 2000).

this income among hired workers, self-employed entrepreneurs/firms, and taxes. GDP by expenditures shows how enterprises, households, and the government use GDP for consumption, investments, and exports.

## *GDP by production and derived indicators*

<table>
<tr><td colspan="5">Gross output</td></tr>
<tr><td>Intermediate consumption</td><td colspan="4">Value added in market prices</td></tr>
<tr><td></td><td>Consumption of fixed capital</td><td>Taxes on production and imports (excluding subsidies)</td><td>Compensation of employees and contributions</td><td>Net profit and mixed income</td></tr>
<tr><td></td><td colspan="4">Gross domestic product (GDP), market prices</td></tr>
<tr><td></td><td></td><td colspan="3">Net domestic product, market prices</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">Net domestic product in basic prices</td></tr>
</table>

Respectively, three methods are used to calculate GDP: production, expenditure, and income-based methods. The advantages of each method are determined by the availability and simplicity of processing the primary data. Large errors in GDP calculations can be avoided by balancing GDP volumes obtained through the three methods. In most countries, calculations are usually based on two methods.[6] Those GDP components which cannot be obtained from the primary information are calculated as a residual. In Ukraine, production and expenditure-based calculation of GDP are the two primary methods. Data obtained by means of these two methods are balanced. In the income method, operating surplus and mixed income are obtained as a residual, which is in accord with international standards.

SNA is convenient for macroeconomic analysis. GDP by production allows viewing the profile of the aggregate supply, while GDP by expenditures represents the structure of aggregate demand. GDP distribution between wages, gross income

[6] *Quarterly National Accounts: Sources and Methods used by OECD Countries,* OECD (1999)

and taxes on production (net of subsidies) maps the distribution of income between labour and capital, the two major factors of production.

Beginning in 1998, Derzhkomstat started calculating the quarterly nominal GDP. Still, the time series of real GDP remains unavailable. When the time series of quarterly real GDP becomes sufficiently long, it will be possible to use seasonal adjustment techniques.[7] Derzhkomstat continues to report cumulative GDP volumes as of the beginning of the year. This does not comply with international standards, for cumulative data do not allow detecting the inflexion point in the GDP curve.

## *Production method*

GDP by the production method is calculated as a sum of value added by economic sectors, in market prices. Value added is obtained as gross output less the intermediate consumption in the sectors. Gross value added is determined in basic and market prices. Gross value added in market prices includes taxes on production and imports (VAT, excise tax, and license fees) net of subsidies.[8]

Data on gross production is obtained from statistical reports of Derzhkomstat and surveys of enterprises which operate in industry, construction, agriculture, services, transport, and communications (see **GDP BY PRODUCTION**).

Production of non-market services (for example, education) is valued at the estimated cost. Output produced by commercial banks is determined as the sum of two components: (1) net interest income and (2) proceeds from secondary financial services (for example, commission) non-interest income. Output of the National Bank is calculated as being equal to its operating cost.[9]

Significant problems arise while calculating value added in the services sector. As a result, extrapolation methods are

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[7] Seasonal adjustment refers to the process of removing cyclical seasonal movements from a series and extracting the underlying trend component of the series. Census X11/X12 is the standard adjustment method used in OECD countries. However, it requires a set of indicators obtained from at least 16 observations (4 years).

[8] Production-based GDP equals the sum of gross added value by sector in basic prices plus taxes on goods and imports minus subsidies.

[9] See *National Accounts of Ukraine in 1998*, p. 10.

used, based on data regarding hours worked, changes in incomes from certain activities (communications, information services), physical volumes of delivered services (for example, volumes of public conveyance and freightage in the transport sector). Intermediate consumption includes expenditures on raw materials, fuel, electricity, semi-products, services etc.

## *Expenditures method*

GDP by the expenditures method is obtained from data on the final consumption by households, non-for-profit organisations, and the government sector; gross fixed capital formation; change in material turnover funds; and net exports.

## *Structure of GDP by expenditures, 1994–1999*

%

| Categories of GDP spending | 1997 | 1998 | 1999 |
|---|---|---|---|
| Consumption of final goods and services: | 81.6 | 81.5 | 79.1 |
| *- household* | *54.2* | *56.9* | *57.4* |
| *- public* | *23.9* | *21.6* | *19.0* |
| Gross fixed capital formation | 19.8 | 19.6 | 19.8 |
| Change in inventories | 1.5 | 1.1 | -0.1 |
| Net acquisition of valuables | 0.2 | 0.1 | 0.1 |
| Net exports | -3.1 | -2.3 | 1.1 |

*Source: Derzhkomstat.*

Final consumption of households comprises the purchases of goods and services (see **GDP BY EXPENDITURES**), goods and services consumed from in-kind incomes, and consumption of made-in items. The information comes from mandatory statistical reports in the trade sector, data on trade in agricultural markets, and data on informal trade (this concerns inferences from the household surveys). Services provided to households are calculated as actual volumes on an accrual basis (for example, consumed but not paid housing/utility services are included in the "GDP consumption" indicator). Consumption by non-for-profit organisations (trade unions,

religious organisations, sport associations, clubs, social and cultural organisations, being on enterprises' balance sheets) is determined on the basis of their statistical reports.

## *Household surveys*[10]

*In 1999, Derzhkomstat started to conduct quarterly surveys of Ukrainian households. The surveys serve to provide the following information:*[11]

- ***General information about households*** *(size and members, education level of each member, address, and living conditions). To obtain these data, interviews are conducted.*
- ***Household expenditures.*** *Respondents keep records of their daily expenditures for two weeks (including purchases of goods and services, consumption of produce from subsidiary plots, and goods received as gifts). Respondents fill in questionnaires about purchases of durable goods once per quarter.*
- ***Household income.*** *Once per quarter, respondents answer questions regarding sources of their income–specifically, income received by each member of the household (wages) and common household income (housing subsidies, compensation, sales of real estate and assets).*

***One-time thematic surveys.*** *In 2000 Derzhkomstat plans to analyse expenditures on construction and renovation of housing and offices, the provision of households with durable goods, and information on respondents' state of health.*

*The following rules have been applied to conducting the surveys:*

- *The sample is formed in several stages: (1) selection of regions (cities and villages)[12]; (2) selection of polls in cities and of village councils in rural districts; (3) selection of households by polling lists in cities and accounting books in village councils. The sample of regional entities is updated every 5 years, and the household sample is reviewed annually.*
- *Surveys are conducted with the consent of household members, as it reduces the risk that respondents understate their income and expenditures.*
- *Conclusions on households welfare are based on expenditures rather than income.*

[10] See *Major social and demographic characteristics of households in Ukraine in 2000: Statistical bulletin,* Derzhkomstat (Kyiv 2000).

[11] A household is defined as a person or persons living in a house collectively and sharing expenditures on housing and food.

Gross fixed capital formation is calculated as a sum of capital investments and renovations reported by enterprises (see **GDP BY EXPENDITURES**). Volumes of exports and imports are determined on the basis of balance of payments accounts (see **FINANCIAL STATISTICS**).

### *Income method*

According to the income method, GDP is calculated as a sum of compensation of employees (wages paid in cash and in kind, and social insurance contributions), gross profits, mixed income (income from business activities), taxes (net of subsidies) on production and imports.

Primary information regarding income by household, business, and government sectors is obtained from enterprises' annual reports, household surveys, reports to the State Tax Administration, and reports of the State Treasury on fulfilling the consolidated budget. Since the accounting of incomes from business activities (gross profits and mixed income[13]) is rather complicated, the GDP figure obtained by the income method is balanced with the GDP figure calculated by the production method.

## Nominal and real indicators

*To obtain real indicators, nominal numbers are adjusted by price indices which reflect the aggregate change in prices of a fixed basket of goods and services*

Comparing GDP and its components over time requires controlling for price changes in the economy. To obtain real indicators, nominal numbers are adjusted by price indices which reflect the aggregate change in prices of a fixed basket of goods and services. Among the most widely used aggregate price indices are the consumer price index, producer price index, deflators of GDP and its components.

Derzhkomstat has been calculating the producer price index from January 1991, and the consumer price index from August 1991. In January 1994, the committee improved monitoring procedures for producer prices and introduced the international methodology for consumer price index calculation. This allowed covering a great variety of goods and ser-

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[12] The probability that a territorial location will be selected for the sample is equal to the proportion of the population of this location in the overall population of Ukraine.

[13] Mixed income comprises households' incomes from business activities. For example, income of an individual entrepreneur is classified as a mixed income.

vices across the majority of regions of Ukraine. Meantime, the development of a methodology for calculating export and import deflators has not been completed yet.

## *Statistics of consumer prices*

The consumer price index (CPI) indicates a change in prices of a representative consumer basket, a composition of goods and services purchased by households.

To calculate CPI, Derzhkomstat monitors prices of goods and services that comprise the consumer basket. These prices are weighted by the shares of corresponding goods (services) in the structure of household consumption.[14]

Derzhkomstat reports the CPI on a monthly basis. To obtain a quarterly or any other value of CPI compared to the beginning of the year, it is necessary to multiply consecutive monthly chain CPI indices.

Changes in prices and tariffs are monitored from the 25$^{th}$ day of the previous month to the 25$^{th}$ day of the current month; for this aim, a constant sample is used, which comprises retail shops and service enterprises of all forms of ownership, and open markets. Information is collected in all oblast and raion centres of Ukraine, and other cities that best reflect economic and demographic specifics of a given region and have a saturated consumer market.

The average for each city's prices on each product (service) are reported to regional statistical branches, where prices for the Autonomous Republic of Crimea, oblasts, and cities of Kyiv and Sevastopol are calculated (average region prices are a sum of prices weighted by the share of the sampled cities in the total population of the region).

Individual price index of a particular product/service in a given region is obtained as a ratio of the respective average price in the current month to the corresponding average price in the previous month. Derzhkomstat determines the national indices of every product/service on the basis of individual regional price indices. In the end, the committee aggregates individual indices in the food, non-food, and services price indices. These three indices are used to calculate the CPI.

[14] CPI is calculated as the Laspeyres index.

Indices are determined for goods and services of comparative quality. If a product/service is not traded, it is replaced by a product or service which has analogous characteristics and quality.

To determine the structure of the consumer basket (and thus obtain weights for the CPI components), Derzhkomstat uses data from household surveys. The share of a certain product/service in the basket changes from year to year; therefore, to compare consumer prices over different years, readjustment procedures are used.

The CPI reflects changes in prices for consumer goods and services; as a result, this index can only be used for the adjustment of indicators that relate to household consumption (for example, real purchasing power of incomes).

## *Statistics of producer prices*

The producer price index (PPI) indicates a change in prices set by producers for sales in the domestic and external markets. Producer prices do not include the value added tax and the excise tax.

To monitor producer prices, Derzhkomstat has formed a sample of over 2,000 enterprises, which comprises 6,000 articles of products of all industries. The committee registers prices on commodities produced by the 20$^{th}$ day of the current month.

In the first stage, individual prices are used to calculate individual price indices for each industrial product. Then individual indices are aggregated into commodity group indices, sub-industry, and industry indices. For aggregate indices, prices are weighted according to the structure of industrial production of the previous period.

## *GDP deflator*

The GDP deflator reflects the change in prices on all goods and services produced in the economy. The SNA requires constructing deflators by GDP components, both on the production (sectors and sub-sectors of the economy) and expenditure (private and public consumption, private and public investments, exports and imports) sides.

Derzhkomstat has developed methodologies for calculating quarterly and yearly deflators.[15] Gross value added in constant prices for sectors where goods and non-market services are produced (for example, communal utilities) is determined on the basis of physical volume production indices. The corresponding deflators obtained through this method would be implicit. In sectors where market services are produced and physical production volumes cannot be obtained (or should not be used, as for example in trade or advertising), deflators are calculated by using price indices.

To determine real private consumption, consumer market price indices are used (indices of prices for corresponding groups of goods and services). The public consumption deflator is calculated, depending on the availability of information, by means of the physical volumes index obtained from budget plans of budget-supported agencies and organizations; or physical volumes index in a given industry; or a change in the number of hours worked.

The investments deflator is the weighted index of prices of capital investments and renovations. Both sub-indices are weighted by prices for machinery/equipment and construction.

The lack of exports and imports deflators complicates the analysis of the real external trade turnover dynamics. So far, the value of exports and imports in the national currency is adjusted by indices of domestic prices. This approach, however, is not correct, since prices in foreign markets are changing.[16]

[15] To determine the real monthly change in GDP, Derzhkomstat uses a deflator estimate which is the weighted average of CPI and PPI. However, after converting to the calculation of GDP on a quarterly basis, this estimate will not be needed.

[16] For example, physical volumes of Ukrainian exports were growing faster in 1997–1999 than their value, because prices of Ukrainian exports did not increase. Meantime, Derzhkomstat data on export prices indicate an increase. Currently, the committee is developing the correct methodology for the calculation of these deflators.

# GDP by production

***Statistics on production by economic sectors have undergone significant changes. Firstly, the number of new enterprises has increased, which requires adjusting the system of collecting primary information. Secondly, international classifications of economic activities have been introduced, which will allow comparing Ukraine to other countries***

*Structural statistics are used to calculate annual macroeconomic indicators and construct national accounts. Sectoral statistics are needed to continuously monitor changes in production by industry and economic sector*

Enterprise statistics, consisting of structural and sectoral statistics, are the basis of any national statistical system. In Ukraine, structural statistics are obtained from annual comprehensive enterprise surveys, while sectoral statistics are obtained from monthly and quarterly data by economic sectors. Structural statistics are used to calculate annual macroeconomic indicators and construct national accounts. Sectoral statistics are needed to continuously monitor changes in production by industries and economic sectors.

## Industrial statistics

### *Structural statistics*

In general, the methodology for collecting and constructing structural statistics in Ukraine is in accord with international standards. Beginning in 1998, Derzhkomstat has been developing the Classification of Economic Activities (*KVED*), which is consistent with the NACE[17] European classification and the ISIC[18] system. Data on output volumes, sales, and number of workers will be presented by types of economic activities, as specified in the *KVED*. The content of the new small business survey introduced in 1997 corresponds to international requirements for structural statistics. However, the reporting of financial indicators is still based on domestic accounting standards, which is not consistent with international requirements.[19]

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[17] NACE – General Industrial Classification of Economic Activities within the European Communities.

[18] ISIC – International Standard Industrial Classification of All Economic Activities.

[19] Beginning 1 January 2000, new accounting standards have been introduced that include a card of accounts adopted to international standards. So far, both old and new standards are used.

## *Sectoral statistics*

The basic indicator of sectoral statistics is the industrial output physical volumes index. The index is derived on the basis of enterprises' monthly reports about produced output. The data from sectoral statistics are used to determine physical volumes of the most important goods produced, as well as volumes of output by sectors. Derzhkomstat calculates volumes of production of consumer goods, certain products, and tolling materials; inventories of final goods are calculated separately.

The sectoral index of physical volumes is determined as the ratio of goods and services produced in the current period to the corresponding indicator in the previous period. Chain indices are used in this process. Both sums are weighted by prices of goods and services in the base period, i.e., transferred into basic prices[20] (this method corresponds to the Laspeyres volume index).

The methodology for collecting and processing sectoral statistics in Ukraine should be improved in the context of the following factors:

- The index captures the dynamic of production of goods and services that includes intermediate consumption, but does not reflect changes in the value added.
- The index is based on the classification of economic sectors, under which all goods and services produced in enterprises of the sector are included.
- The cumulative index of production is the sum of monthly physical production volumes, which is multiplied by prices effective of January 1 of the accounting year. However, this method distorts the comparison of the two respective periods in different years, because it is not adjusted for structural changes in production.

Methodological pitfalls of the calculation of industrial indicators can substantially bias conclusions regarding sector's performance. For example, statistics could indicate growth in the electricity sector while physical volumes of production decline. The following factors can explain this phenomenon:

[20] The beginning of the base period is considered to be January 1 of the reporting period.

- Electricity sector output comprises production of electricity by energy sources (heating, nuclear, and waterpower) weighted by corresponding prices. When prices rise, year-on-year production volume increases despite the physical volume indicator declines.
- Calculations also comprise secondary goods, works, and services which are not related to the production of the main output (for example, equipment repairs); as a result, indicators calculated for the electricity sector can increase while actual volumes of electricity production decline.

## *Enterprises which reported to the state statistical authorities in 1999*

*number of entities, if not specified otherwise*

| | Large and medium firms | Small enterprises | Share of large and medium enterprises, % | |
|---|---|---|---|---|
| | | | in the total number of firms in the sector | in sectoral output |
| Total | 36,905 | 197,127 | 15.8 | 88.9 |
| Agriculture and forestry | 12,361 | 4,589 | 72.9 | 96.2 |
| Fishery | 135 | 220 | 38.0 | 96.3 |
| Mining | 528 | 316 | 62.6 | 99.5 |
| Manufacturing | 8,262 | 29,486 | 21.9 | 92.8 |
| Electricity, gas, and water production | 669 | 451 | 59.7 | 98.7 |
| Construction | 3,367 | 16,175 | 17.2 | 74.8 |
| Wholesale and retail trade, renovation services | 4,082 | 100,148 | 3.9 | 51.9 |
| Hotels and restaurants | 531 | 6,655 | 7.4 | 63.1 |
| Transport and communications | 1,924 | 6,598 | 22.6 | 97.4 |
| Financial activities | 1,349 | 1,065 | 59.6 | 67.5 |
| Real estate operations, lease, services to legal entities | 2,348 | 20,827 | 10.1 | 67.5 |
| State administration | 47 | 237 | 16.5 | 99.1 |
| Education | 228 | 1,439 | 13.7 | 71.5 |
| Health care and social aid | 219 | 1,859 | 10.5 | 74.1 |
| Collective, public, and private services | 854 | 7,209 | 10.6 | 67.9 |
| Housemaid services | — | 2 | — | — |
| Exterritorial activities | 1 | 1 | 50.0 | 99.3 |

*Source: Derzhkomstat.*

Sectoral statistics cover a large number of economic entities, including small enterprises. However, their output can also be underestimated, because enterprises wanting to avoid tax payments can understate actual volumes in their official reports. Derzhkomstat can overcome the distortion if it switches from comprehensive to sample surveys, when enterprises can submit anonymous reports.

Further reform of the sectoral statistics related to calculations of the physical volume indices according to UN and Eurostat standards (Derzhkomstat launched the reform in 1997) should envision the following:

- calculation of industrial value added indices;
- definition of the value added indices;
- adoption of a new index structure, consistent with the international classification of economic activities;
- amendment of statistical reports that would allow comparing physical production volumes across countries. Specific goods and services, where physical volumes are not informative, should be determined either in value terms (adjusted by inflation) or based on data regarding worked hours (adjusted by a change in productivity)—this approach is used in international practice;
- rejection of the use of constant prices, since the monitoring of all goods and services imposes exceedingly large costs;
- introduction of the turnover index and data collection for the system of subjective indicator statistics; and
- introduction of seasonal data adjustment.

## Statistics on construction

Derzhkomstat receives information on construction volumes from statistical reports submitted by customers and contractors of construction and assembly works.

The representation of construction organisations is consistent with international standards. Statistical reports cover approximately 80% of all construction organisations, while the minimal level is 70%. Beginning 1 January 2001, Derzhkomstat will introduce the classification of buildings based on European standards. In addition, this will allow more comprehensive coverage of investments in construction in the System of National Accounts.

In international practice, residential construction includes investments in housing construction. In Ukraine, investments in private (standalone) housing construction and investments in apartment (public) housing construction are accounted separately.

The source of statistics on individual housing construction is the permits issued by special organisations to private builders. Then, they report on the number of issued permits to Derzhkomstat. Estimates of expenditures on housing construction are obtained directly from the builders who receive the permits. Therefore, the risk that the size of investments is understated becomes rather high.

Investments in the construction of apartment buildings are reported to Derzhkomstat by contract construction organisations.

The total output in the construction sector comprises expenditures on new construction and renovation works, fulfilled either by contract organisations or enterprises themselves, and volumes of residential construction.[21] Intermediate consumption is determined on the basis of reports by construction organisations on operating expenditures.

## Statistics on agriculture

Statistics of the agricultural sector comprise activities of (1) agricultural enterprises registered as legal entities and (2) individual subsidiary plots.

Derzhkomstat obtains data on the agricultural sector from the following sources:

- statistical reports of enterprises;
- individual reports on each subsidiary farm;
- household surveys (see **SYSTEM OF NATIONAL ACCOUNTS**);
- sample surveys of farms;
- agricultural censuses.

All agricultural enterprises registered as legal entities submit monthly and annual reports, the latter being more comprehensive. All agricultural enterprises excluding farms must disclose financial indicators in their annual reports.

[21] Exploration works are also included in construction output.

Village councils keep records regarding each individual subsidiary farm in their area (as of January 1), which include information on the area and composition of major sown crops and the number of heads of livestock and poultry.[22]

Data on agricultural output in individual subsidiary farms, including heads of livestock and poultry, are collected through household surveys. Beginning 1999, these surveys are conducted on a quarterly basis (previously they were done on a monthly basis). The information obtained from these surveys allows determining indicators on input utilisation, as well as agricultural output. Based on these surveys, the cost of production in the agricultural sector that is born by households can be examined.

Beginning September 2000, Derzhkomstat conducts monthly surveys of agricultural activities by household in rural Ukraine. The sample comprises approximately 25,000 households (0.37% of arable lands) and is representative by territory. The collected data includes gross output and yields of crops, and the condition and productivity of livestock.

Periodic samples and comprehensive surveys by Derzhkomstat present information on the farming activities of households in cities and towns, where individual reports are not compiled.

Beginning 1989, private farms have been emerging in Ukraine.[23] Derzhkomstat obtains information on their activities from a number of annual statistical reports. Besides, the committee conducts comprehensive and sample thematic surveys. Sample surveys focus on recording inventories of inputs; sales volumes of livestock and crops; private farms' income and expenditures on the production of agricultural output; and social issues.

The dynamic of gross agricultural output is determined in 1996 constant prices.[24] After that, real indicators are obtained. To convert to current prices, the following data are used:

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[22] Corresponding record-books are renewed every five years. The next renewal will take place in 2001.

[23] As of 1 January 2000, the output produced by private farms constituted 1% of the gross agricultural output.

[24] The base period used in the System of National Accounts is different, which can distort the statistics.

- financial reports for enterprises registered as legal entities, where the net profit of the sector is added to the cost of production;
- annual reports, which contain information on physical volumes and value of grain and melon crops, meat, dairy, and other products are used for individual subsidiary farms. The record is taken of (1) sales of each type of produce to consumers in open markets and procurement organisations and (2) sales prices.

# Statistics on services

## *Overview*

*The statistics on services do not correspond to international standards because of the outdated classification*

The service sector in Ukraine is developing dynamically. In 1999, 49% of the gross value added was produced in services. However, the statistics on services do not correspond to international standards; the outdated classification still being used does not include services delivered by small enterprises, nor high-tech services.

Derzhkomstat obtains data on services in trade, transport, communications, printing, and computer technologies from annual, quarterly, and monthly statistical reports. All enterprises of all forms of ownership which operate in the services sector must submit information on the volume of delivered paid services.

Volumes of banking and financial services are determined on the basis of reports submitted by insurance companies and commercial banks. Services delivered by non-government organizations are accounted separately.

Gross production of services consumed by households (for example, domestic services) is derived from household surveys, which contain data on household purchases of these services.

The following problems exist in the Ukrainian statistics on services:

- Classification of enterprises that provide services is not consistent with international standards overall. Services provided by financial, consulting, and advertising firms are only partially considered by Derzhkomstat.
- Not all enterprises can be identified and classified according to the outdated classification. The quality of informa-

tion will improve after the list of reporting entities is reviewed according to the KVED.

- Some private enterprises and entities which provide services to households evade reporting or understate the actual volumes of supplied services.

## *Transportation*

Indicators used to describe the transport sector include physical volumes of public conveyance and freightage by rail, sea, river, air, and pipeline transport, as well as statistics on the condition of highways. Derzhkomstat disseminates comprehensive information on the freight transit, import, and export through sea and river terminals. The main drawback of the transport statistic is the lack of information on transit and transportation volumes in value terms.

Derzhkomstat estimates output of the transport sector as a sum of incomes of transport enterprises received from public conveyance, freight, and mail delivery and receipts from subsidiary activities (loading/unloading and terminal operations). To determine volumes of services in constant prices, indices of public conveyance and freightage are used.

## *Communications*

Volumes of services in the communications sector are determined as the proceeds of communications enterprises from the following activities:

- delivery of mail;
- payment for the use of telephone lines and other telecommunications channels, in particular, access to primary communications networks.
- broadcasting; and
- payments for satellite, computer, and mobile services (in particular, cellular, trunk, and paging).

In their reports, European statistical agencies discuss difficulties related to the development of communications statistics. They emphasise the following problems in accounting telecommunications services: (1) institutional (firms lack stimuli to report); (2) methodological (differences in the types of services and their quality); and (3) confidentiality issues.

In Ukraine, owing to the transparent activities of carriers and the timely introduced statistical survey (1998), the quality of

communications statistics on new services is high. Meantime, Internet services—the most dynamically developing segment of the computer communications—have been covered only partially (only large carriers submit reports). A large share of Internet services might not be accounted for due to the absence of licensing and non-material nature of accounting of these activities.

## *Foreign commerce*

Derzhkomstat accounts services in foreign commerce. The National Bank of Ukraine uses data of Derzhkomstat in compiling the balance of payments (see **FINANCIAL STATISTICS**).

The main source of statistics on services in foreign commerce is reports on services exports and imports submitted by enterprises on the basis of concluded contracts. Derzhkomstat calculates statistical indicators on an accrual basis: services are accounted on the date of their delivery and receipt, as indicated in the invoice. It accounts volumes of re-exports and exports (for further processing), but ignores the cost of tolling inputs.

## *Retail trade*

The overall trade turnover is determined as a sum of retail trade turnover and trade volumes in open markets.

The retail trade turnover comprises sales of goods to consumers in the retail trade network, catering, and sales through cash registers in industrial, agricultural, and other than trade enterprises. Besides, the sales of food products to health centres, kindergartens, hospitals and other such institutions are considered as part of the retail trade turnover.

The source of information regarding retail trade turnover is monthly statistical reports of enterprises. The statistics cover almost all large, medium, and small firms engaged in retail trade and catering[25].

Derzhkomstat receives information on trading volumes in both organised and informal markets from the following sources:

- monthly surveys in a number of cities to examine the sales of agricultural produce in open markets;

[25] The committee adjusts the retail trade turnover upward by approximately 5% after processing the submitted annual reports.

- quarterly household surveys;
- annual surveys of sales of non-food products in open markets (markets and vendors are subject to comprehensive and random inspections, respectively).

## *Trade and catering enterprises in 1999*

| | *thousands* |
|---|---|
| Total | 48.0 |
| Retail trade | 28.2 |
| Catering | 4.8 |
| Industry | 3.8 |
| Agriculture | 3.8 |
| Wholesale trade | 2.7 |
| Other | 4.6 |

*Source: Derzhkomstat.*

Beginning 2000, Derzhkomstat has conducted monthly surveys of retail trade and catering enterprises and suspended comprehensive statistical reporting for them. This resulted from an increase in the number of reporting firms. Surveys allow covering the activities of individual entrepreneurs. Trading activities are accounted according to the *KVED*[26].

## *Consumer market of Ukraine in 1999*

| | Size, millions hryvnias | Market share, % | Physical volume index (1998=100) |
|---|---|---|---|
| Total | 34,421 | 100.0 | 95.9 |
| Retail trade turnover | 22,151 | 64.4 | 92.9 |
| Turnover in organized markets | 10,239 | 29.7 | 100.6 |
| Food products | 5,420 | 15.7 | 100.3 |
| Non-food products | 4,819 | 14.0 | 100.9 |
| Turnover in informal markets | 2,031 | 5.9 | 107.4 |

*Source: Derzhkomstat.*

[26] For example, the number of trade and catering enterprises that submit statistical reports increased from 4,500 thousand in 1990 to 48,000 in 1999.

Gross output in the trade sector is equal to the trade mark-up (the difference between the purchase and sales prices). Gross output in catering includes the trade mark-up set by catering firms, the cost of cooked produce, and the cost of uncooked produce.

## *Wholesale trade*

Data on gross output and intermediate consumption by state and private wholesale trade enterprises is obtained from their reports to Derzhkomstat. Gross output is determined as the trade mark-up (the difference between the sales and purchase prices). Volumes of intermediary services are determined from data on amounts paid for these services.

In 2001, Derzhkomstat plans to introduce surveys for the examination of wholesale trade enterprises. To determine the structure of the sector, the committee censused enterprises operating in it as of 1 October 1999.

# GDP by expenditures

***Introduction of the SNA has allowed better accounting of the consumption and investment indicators. Besides the SNA respective accounts, Derzhkomstat continues to disseminate an outdated balance of household income and expenditures, as well as data on enterprises' capital investments, which reflect only a part of total consumption and investments***[27]

## Statistics on consumption

*Information on consumption is presented in the balance of household income and spending, as well as in the report on GDP by categories of spending*

Household consumption amounts to approximately 60% of GDP. Information on consumption is presented in the balance of household income and spending, as well as in the report on GDP by categories of expenditures.

Data in the balance of household income and spending does not correspond to data on consumption reported in the SNA. Firstly, the balance is constructed using the cash method, while the SNA is built by the accrual method. Secondly, the balance of household income and spending is calculated on the basis of banking statistics, reports on the budget and state fund execution, and other mandatory reports. Meantime, data on consumption collected for the SNA comes from mandatory reports, statistics on trade in agricultural markets, and information on informal trade (according to estimates of household surveys). As a result, the consumption indicator in the balance of household income and spending is usually less than that in the SNA.

The balance of household income and spending underestimates household expenditures, for it does not include all sources of household incomes. In-kind incomes and receipts from informal trade activities are not included in the balance. Profits from individual entrepreneurial activities appear, in part, in the "Other sources" item. As expenditures are brought into line with incomes, underestimation of the latter leads to the underestimation of consumption.

Household savings are calculated as household incomes less the value of consumed goods and services. Three compo-

[27] See **FINANCIAL STATISTICS** chapter for a discussion of the methodology for determining net export volumes, the last component of GDP by expenditures.

nents of household savings can be derived from Derzhkomstat data: (1) hryvnia cash holdings, (2) holdings of foreign currencies, and (3) bank deposits and securities holdings.

Due to the understatement of household incomes and a large share of cash circulation not covered by the banking sector (for example, cash savings in foreign currencies), household savings reported by Derzhkomstat can bias the true size downward.

## Statistics on investment

*Most investments in the economy are made by businesses, while households make residential investments*

Investments are determined as an increase in capital stock. Statistics on investment comprise investments in construction, purchases of equipment, and capital repairs of buildings and equipment. Gross investments also include inventory investments, a change in holdings of inputs, and final products. Inventory investments serve as an indicator that reflects disequilibria between demand and supply.

### *Calculation of business investments*

| Component | Source | Deflator | Share as of 1999 |
|---|---|---|---|
| Capital investments (SNA methodology) | Comprehensive survey of contracting construction organisations | Capital investment price index | 76% |
| Increase in the value of cattle in main herds | Survey of agricultural enterprises | Indices of physical volume of cattle head and of cattle sales prices | 1% |
| Expenditures on capital repairs of: | | | 19% |
| buildings | Various sources | Construction and assembly price index | 15% |
| machinery and equipment | Various sources | Machine building price index | 4% |
| Purchases of equipment by budget-supported organisations | Report on the state budget execution | Machine building price index | 2% |
| Expenditures on geosynoptics | | | 1% |
| Expenditures on the development and purchase of software | Reports of corresponding organisations | Index of prices in information services | 0.3% |

*Source: Derzhkomstat.*

The main source of investment statistics is enterprises' mandatory reports. Data on the consolidated budget execution are used to determine the volume of public investments. Estimation of public investments has improved thanks to the economic classification of budget expenditures (approved by the Finance Ministry on 27 December 1999) reported by the State Treasury.

## *Gross fixed capital formation*

Gross fixed capital formation (or business investment) is reported in the SNA. Capital investments, which have been traditionally calculated by the State Statistics Committee, comprise the largest part of business investments. Capital investment expenditures on machinery and equipment, construction and assembly, and instruments included in construction budgets. Besides capital investments, business investments include capital repairs, expenditures on geosynoptics, purchases of equipment by budget-supported organisations, and several other items.

## *Inventory investment*

The term "inventory investment" refers to an increase or decrease in the stock of inventories. Inventory investment includes two components: a change in the physical volume of stocks, and the net acquisition of valuables.

Change in material turnover funds is derived from quarterly accounting reports of enterprises and organisations, in particular, accounts on inputs inventories, on-going construction, and inventories of final goods. In addition, Derzhkomstat assesses a change in inventories of agricultural enterprises.

According to the SNA methodology, the holding gains or losses (an increase in the value of goods, being held as inventories) are excluded from the gross value added. Therefore, a change in inventories is adjusted by the size of the holding gains. To control for price factors, Derzhkomstat uses average quarterly price indices, calculated on the basis of monthly indices (PPI and other indices), and industrial turnover coefficients.

The net acquisition of valuables includes purchases of valuables (works of art, precious stones and metals). According to the SNA, these purchases are considered as investments rather than consumption.

# Labour statistics

***In general, labour indicators calculated by Derzhkomstat adequately reflect the state of the labour market, being in accord with international standards. However, frequent changes in methodology complicate analysis of the dynamic of these indicators. In particular, quarterly labour surveys conducted by the methodology of the International Labour Organisation cover only the period beginning 1999***

## Wage statistics

The source of data on wages is the statistical reports of enterprises.

The average monthly wage is calculated as a share of the ratio of the monthly wage fund to the average number of employees in the respective period. The average number of employees is calculated as the sum of all full-time workers in a given month (the number of people working on week-ends is considered equal to the number of people working on the last day of the work week) divided by the number of days in that month.

Since layoffs (unpaid forced leaves), as well as short working days or weeks are still widely practiced in Ukraine, it should be kept in mind that not all workers included in the average number of employees actually receive their wages. Therefore, the real average monthly wage can be adjusted downwards, due to the use of the method described above.

Being aware of this distortion, Derzhkomstat additionally calculates an equivalent of the full employment average wage. To determine this indicator, the average number of employees is multiplied by the ratio of actually paid working hours to potential labour hours over a given period. The potential labour hours are assessed according to a certain schedule (for example, a 40-hour working week). The number of workers hired by contract is added to the average number of employees. Paid working hours also include hours that were not worked for special reasons (annual vacations, disability, etc).

Derzhkomstat calculates the average wage earned per hour. To obtain it, the total wage fund is divided by the number of actual working hours. This indicator, however, overstates the hourly wage, since the wage fund includes payments (not

made) for the time when employees were absent from work for good reasons.[28]

In January 1996, Derzhkomstat included the component "other premiums and compensations" in the wage fund. This fact should be taken into account while analysing the wage dynamic before and after the year of 1996.

Beginning April 1998, Derzhkomstat included data on collective agricultural enterprises (*KSPs*) in the average wage calculations.[29]

Wage statistics ignore the wages paid in small enterprises and the remuneration of workers hired by individual entrepreneurs, because these agents do not submit monthly statistical reports.[30]

## Labour statistics

The key indicator of the labour market surveys is the size of the labour force (the set of people that have jobs or are actively looking for employment). Accordingly, the labour force includes both employed and unemployed workers. The share of the labour force in the total population indicates the extent of economic activity in a given country.

In Ukraine, the labour force is accounted twice. On the one hand, Derzhkomstat, as previously, calculates indicators of labour resources and the able-bodied population of working age. These labour indicators were used in Soviet statistics, which assumed full employment.

On the other hand, Derzhkomstat introduced labour force surveys that correspond to international standards in 1995. In general, Derzhkomstat relies on the statistical reports of enterprises; it conducts surveys, as well.

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[28] According to Oleksii Sluchynsky's "Official labour statistics in Ukraine: behind the numbers" (see *Ukrainian economic trends,* December 1998*)*, payments for hours that were not actually worked amounted to 8.1% of the total wage fund in 1997.

[29] The wage statistics for former KSPs have not been published separately since April 2000, because the agricultural sector is undergoing reorganisation.

[30] Annual statistics on small firms are prepared by the Derzhkomstat business department.

## Statistical reports

*In Ukraine, the labour force is accounted twice: (1) indicators of labour resources and able-bodied population of working age; (2) labour force surveys which correspond to international standards*

State statistical reports of enterprises include workers that have been officially registered by firms, agencies, or organisations of all forms of ownership. The average number of employees is determined on the basis of statistical reports; it is used to calculate wage amounts.

The indicator "average number of workers" does not include workers who do not submit obligatory statistical reports (self-employed, employed in individual subsidiary farms, etc.).

## Employment by economic sector in 1999

| | Thousand people | % |
|---|---|---|
| Total employed | 21,824 | 100.0 |
| In economic sectors | 18,790 | 86.1 |
| Industry | 4,342 | 19.9 |
| Agriculture (including in individual subsidiary farms) | 4,927 | 22.6 |
| Construction | 974 | 4.5 |
| Transport and communications | 1,229 | 5.6 |
| Trade and catering | 1,510 | 6.9 |
| Housing/communal utilities, non-production consumer services | 814 | 3.7 |
| Health care, physical fitness, and social services | 1,446 | 6.6 |
| Education, culture, and science | 2,241 | 10.3 |
| Financing, credits, and insurance | 162 | 0.7 |
| Apparat of the public administration and other administrative bodies | 751 | 3.4 |
| Individual employment activities | 3,034 | 13.9 |

*Source: Derzhkomstat.*

The most comprehensive indicator of employment calculated by Derzhkomstat is "employment by economic sectors". It considers people of working and elderly age, and youth, employed by contracts; employers; self-employed; family members, working on a non-paid basis in family enterprises; regular servicemen; and clergy. To calculate employment by economic sector, the following sources are used:

- reports submitted by enterprises;
- labour surveys;
- surveys of private farms;
- surveys covering informal employment.

Based on the information of the State Employment Centre regarding registration of the unemployed, Derzhkomstat determines the rate of officially registered unemployment; this indicator is obtained by dividing the number of registered unemployed by the number of able-bodied people of working age.

## *Surveys of the labour force*

Since 1995, Derzhkomstat has been conducting yearly surveys of the labour force according to standards of the International Labour Organisation (ILO). The survey aims to examine the economic activity of people aged 15–70. The following indicators are calculated on the basis of these surveys:

- labour force, which comprises the employed and unemployed[31];
- the unemployed, both unregistered and registered in the state employment centre.

## *Economic activities of the population in 1999*

*thousands people, if not specified otherwise*

| | Average in 1999 |
|---|---|
| Labour force, people aged 15–70 | 22,747 |
| Employed | 20,048 |
| Unemployed | 2,699 |
| People not in the labour force aged 15–70 | 13,783 |
| Participation rate, % | 62.3 |
| Employment rate, % | 54.9 |
| Unemployment rate, % | 11.9 |

*Source: Derzhkomstat.*

In 1999, Derzhkomstat suspended annual surveys of the labour force and started conducting quarterly surveys built on a new methodology. Therefore, data from surveys before and after 1999 are not directly comparable.

[31] Labour force (as defined by the ILO) comprises people (aged 15–70), who are either employed or actively looking for a job and ready to start working.

# Financial statistics

***In this concluding part of our research, we present an overview of the financial statistics which are prepared by the Finance Ministry and the National Bank of Ukraine. While monetary and balance-of-payments statistics have been harmonised with international standards, this remains a challenge for statistics on public finances***

## Statistics on public finances

*Currently, the Ukrainian public has limited access to information regarding the state of public finances*

Statistics on public finances are prepared by the Finance Ministry of Ukraine. Derzhkomstat uses data of the ministry in the SNA to determine volumes of public consumption and investments.

Currently, the public has limited access to information regarding the state of public finances. The Finance Ministry does not widely disseminate the reports of the State Treasury. In a monthly bulletin, Derzhkomstat discloses only an abridged report "Revenues and expenditures of the consolidated budget of Ukraine"; and information on the structure of the public debt is not published at all.

According to IMF standards on fiscal transparency[32], the public should have access to the following information on public finances: (1) general government transactions (that is, at all government levels); (2) operations of the central government; and (3) debts of the central government. These data can usually be found on the web page of the finance ministry or statistical agency in the Internet.

In 1998, the Finance Ministry introduced a budget classification which in general corresponds to IMF standards on fiscal statistics (GFS[33]). The functional classification of the budget standardises the accounting of budget revenue sources and outlays destination. In particular, expenditures are generally consistent with the IMF Classification of functions of the government. Beginning in 2000, owing to the Finance Ministry initiative, fiscal accounts are structured according to a new economic classification of expenditures (i.e., economic des-

[32] *Manual on Fiscal Transparency,* IMF (1998).

[33] *Manual on Government Finance Statistics,* IMF (1986).

tination of outlays). This should simplify the calculation of public consumption and investment for the SNA.

Own funds of budget-supported agencies and organisations were included in the 2000 budget. This increased the transparency of public finances and allowed assessing the size of the public sector more adequately.

However, the public finances remain far from being wholly transparent. As previously, the public has limited access to information. Firstly, this concerns the size of revenues and expenditures of the Pension Fund of Ukraine and other state funds; secondly; the size of extended tax privileges[34] (in international practice, tax exemptions are recorded as tax expenditures, while the amount is noted with a negative sign in the revenue side).

## Monetary statistics[35]

*Since 1998, monetary statistics in Ukraine have been brought into accord with international standards*

Monetary statistics includes monetary aggregates, the size of international reserves, balances of the banking sector and the National Bank of Ukraine, interest rates (rates on loans and deposits, and refinancing rates), and the size of loans and deposits of commercial banks.

Data on monetary statistics is prepared by the National Bank of Ukraine (NBU), which also develops the methodology for calculating relevant indicators. Besides, the NBU generalises data from banking reports, which reflect the state of the banking system (profits, capital, etc.). Since 1998, monetary statistics in Ukraine have been brought into accord with international standards. This was done thanks to converting banking accounting to the international standards.

The source of monetary statistics is reports of commercial banks and the National Bank of Ukraine. The NBU uses the Electronic Funds Transfer System for collecting balances of commercial banks on a daily basis. The electronic form accelerates processing of data and allows calculating a large variety of financial ratios. The NBU prepares final statistics by using banks' monthly and annual reports and adjusting the data accordingly.

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[34] The volume of tax exemptions is recorded by the State Tax Administration.

[35] The main indicators of monetary statistics can be found on the official web page of the National Bank of Ukraine (www.bank.gov.ua).

*Monetary aggregates*

| Aggregate | Meaning |
|---|---|
| $M_0$ | Cash holdings by households and firms |
| $M_1$ | $M_0$ + demand deposits and checkable deposits in the national currency |
| $M_{2N}$ | $M_1$ + time deposits in the national currency |
| $M_2$ | $M_1$ + time deposits in the national and foreign currencies |
| $M_3$ | $M_2$ + banks' own shares and proceeds from banks' trust operations |

*Source: NBU.*

Currency in circulation and the monetary base are considered the key indicators of monetary statistics. Currency in circulation is represented by $M_0$, $M_1$, $M_2$, and $M_3$ monetary aggregates. The monetary base comprises money circulation outside of the banking sector (cash), banks' deposits in an account at the NBU plus currency that is physically held by banks, including required reserves.

The NBU faces the following problems in determining monetary indicators:

- There is no data on the actual holdings of foreign currencies by Ukrainian citizens, which complicates the estimation of the relationship between changes in the currency in circulation and inflation.[36]
- Currency in circulation can be considered in a broader sense by including operations of financial intermediaries. According to current legislation, financial intermediaries are not banking institutions and therefore do not submit reports to the National Bank.

International reserves of the NBU are represented according to international standards. By the IMF methodology (International Financial Statistics), international reserves are that part of the NBU's foreign assets, which is controlled by the NBU and can be used to finance the current account deficit directly or influence the size of this deficit indirectly. International reserves comprise foreign exchange reserves,

[36] According to NBU estimates, cash holdings of foreign currencies amount to approximately 10–12 billion USD.

Ukraine's reserve position in the IMF, SDRs, and monetary gold. The size of international reserves is determined on the basis of NBU's flash and balance information.

Other characteristics of a country's international liquidity position (country's ability to meet its commitments to foreigners) are as follows:

- the sum of international reserves and NBU's claims on non-residents (other assets);
- the NBU's net international reserves: gross international reserves net of short-term liabilities to foreign institutional lenders (with the initial term to maturity less than 1 year), including receipts from the IMF.

Commercial banks' interest rates on loans are calculated as rates weighted by the amount of extended loans (this method ignores interest-free loans). Commercial banks' loans and deposits are represented by sectors (households, businesses and the government), and economic sectors.

## Statistics on the balance of payments

*Beginning in 1993, the NBU keeps the balance of payments accounting according to international standards*

Balance of payments statistics are a set of data that reflects the state of the external sector of the economy. The NBU is responsible for calculating and disseminating the balance of payments. To determine the size of the balance, the NBU uses information of Derzhkomstat and the State Customs Committee on the foreign trade turnover. In its turn, Derzhkomstat uses the NBU's data to calculate the SNA indicators (see **SYSTEM OF NATIONAL ACCOUNTS**).

Beginning in 1993, the NBU keeps balance of payments accounting according to international standards[37], and therefore has to adjust the Derzhkomstat data. Here, Derzhkomstat foreign trade data has an important advantage: the committee classifies goods by groups, countries of destination, and origin. In addition, it discloses information a month before the data on the balance of payments becomes available from the NBU.

[37] *Balance of Payments Manual*, 5th edn, IMF (1993).

## *Foreign trade accounting by Derzhkomstat*

Beginning in July 1996,[38] Derzhkomstat has been using data of the State Customs Service and reports of enterprises (which report operations not recorded by the customs services) to calculate foreign trade statistics. Before 1996, Derzhkomstat underreported volumes of foreign trade, for it used only enterprises' reports (and ignored customs statistics). Therefore, this change in methodology should be kept in mind while comparing data on foreign trade before and after July 1996.

## *Balance of payments calculation by the NBU*

Beginning in 1993, the methodology of balance of payments accounting has not been changed, which allows compiling consistent time series.

To calculate the trade balance, the NBU uses data from Derzhkomstat and the State Customs Committee, adjusting it according to international standards:

- The value of imports (calculated by Derzhkomstat) is adjusted downwards by the value of freight and insurance (the NBU uses f.o.b. prices to determine imports volumes, while Derzhkomstat relies upon c.i.f. prices).
- The NBU also assesses the volume of informal trade (for example, it includes data of the State Customs Committee on imports by individuals and the number of imported used cars).
- The NBU includes repairs of goods in the merchandise trade balance, while Derzhkomstat keeps this account in the service balance.

To determine the services balance, the NBU uses data from Derzhkomstat and banking reports. Data on services reported by the NBU and Derzhkomstat are usually different in the amount of the "other services" item, which includes commission fees to foreign intermediaries, payments for services of foreign consultants, advertising agencies, and marketing firms, and payments to non-residents for operational leasing.

[38] In July 1996, Derzhkomstat and the State Customs Committee adopted a new methodology for determining the foreign trade volumes.

The capital account is determined on the basis of Derzhkomstat data on foreign direct investments; information of the Finance Ministry regarding the state of the public debt; and data of the NBU on commercial banks' transactions.

The "Errors and omissions" item is used to level imbalances between the current account and the capital account. This item reflects the size of capital flight from the country. In addition, errors arising because of only rough estimations of the informal trade volumes and the amount of foreign currencies circulating in Ukraine.

# Appendix. Outline of statistical information

| Indicator[39] | Frequency[40] | Issue date, end of period | Source, B—book or bulletin, EI — express information, ER— express report |
|---|---|---|---|
| **System of National Accounts** | | | |
| Production of goods and services, gross value added | M | 16 days | Gross value added (EI), Quarterly national accounts (EI), |
| | Q, A | 95 Quarterly, 30 Annual | Annual national accounts (B) |
| GDP by expenditures (consumption, investments, exports) | Q, A | 95 days | Quarterly national accounts(EI) |
| GDP by income (wages, taxes net of subsidies, gross profit and mixed income) | Q, A | 95 days | Quarterly national accounts(EI, B) |
| Indices of physical volumes | Q | 95 days | Quarterly national accounts (EI) |
| National accounts in constant prices | A | 30, preliminary, 13 months, final | Annual national accounts (B) |
| Input-output matrix in basic and market prices | A | 13 months, final | Input-output matrix (B) |
| *Prices* | | | |
| Consumer price index and its subindices | M | 3 days | On the consumer price index (EI), Average prices and tariffs on consumer goods, paid services and their indices(B), consumer price indices (B)† |

[39] The data is presented by the Derzhkomstat if not specified otherwise.

[40] M stands for monthly, K for quarterly, and A for annual.

† Information is available, through published once a year.

| | | | |
|---|---|---|---|
| Producer price index and its subindices | M | 3 days | On the producer price index (EI), producer price subindices (B)† |
| Index of construction and assembly works prices | M | 16 days, once in halfyear | Prices in construction (information bulletin) |

## GDP by production

| | | | |
|---|---|---|---|
| *Industry* | | | |
| Industrial production index and output volumes | M, A | 15 days | On the main indicators of the industrial sector performance in Ukraine |
| Structural statistics (number of enterprises, sales and output volumes, average number of employees by types of activities, as specified in *KVED*; cost of production (works, services); residual inventories) | A | 7 months | Industry of Ukraine (ER) |
| *Agriculture* | | | |
| Agricultural output, gross value added, index of physical volumes | M, Q | 9 days | Not published |
| The progress in field works and harvesting | | Not periodical | On the readiness of agricultural enterprises to field works (EI) |
| Structural statistics on agriculture | A | 5 months | Agriculture in Ukraine (B) |
| Financial results of the agricultural sector | A | 4 months | Major agricultural indicators of the agricultural enterprises performance (B) |
| *Services* | | | |
| Freightage | M | 15 days | Summary of the transportation complex performance (EI) |
| Public conveyance | M | 15 days | |
| Communications services | M | 12 days | Summary of the communications enterprises performance (EI) |
| | Q, A | 24 days | Communications services (B) |

| | | | |
|---|---|---|---|
| Export (import) of services | Q, A | 70 days | Foreign trade in goods and services in Ukraine (B) |
| Retail trade turnover in trade and catering | M | 15 days | Retail trade turnover, including catering (EI) |
| | Q, A | 60 days | (B) |
| Structural statistics on retail trade | A | 6 months | Trading network in Ukraine (B) |
| | | | Retail trade in Ukraine (3) |
| | | | Households' provision with durables(B) |
| Goods structure of retail trade | Q, A | 66 | Goods structure of retail trade (B) |
| Wholesale trade | A | 3 months | Delivery of non-food products to households (excluding products of the light industry), and their inventories in the wholesale trade and industry (B) |

# GDP by expenditures

*Consumption*

| | | | |
|---|---|---|---|
| Household income, consumption, and saving | M | 25 days | Household income/expenditure balance |
| | Q | 25 days | |
| Household surveys | A | 120 days | Social and demographic characteristics of households in Ukraine (B) |
| | Q, A | 40 days | Expenditures and income of households in Ukraine (B) |
| | A | 7 months | Expenditures, income and living survey of households in Ukraine (B) |

*Investments*

| | | | |
|---|---|---|---|
| Gross fixed capital formation | Q, A | 75 | On the installation of fixed assets and capital investments (B) |
| Capital investments | Q | 25 | On capital investments (EI) |

| | | | |
|---|---|---|---|
| Foreign direct investments | Q | 50 | Foreign investments (EI) |
| Inventory investments | Q, A | 75 | Quarterly national accounts(EI), Annual national accounts(3) |

# Labour statistics

*Wage statistics*

| | | | |
|---|---|---|---|
| Average monthly wage | M | 24 days | Wages (EI) |
| Average number of the employed | M | 42 days | Labour force in Ukraine (B)† |
| Average wage equivalent to full employment | | | |
| Hours worked | | | |
| Average wage per hour | | 6 months | |
| Wage fund | | | |

*Labour force statistics*

| | | | |
|---|---|---|---|
| Labour resources | A | 7 months | Labour force in Ukraine (B)† |
| Able-bodied population of working age | | | |
| Official unemployment | M | 15 days | State of the labour market (EI) |

*Labour force surveys*

| | | | |
|---|---|---|---|
| Economically active population | Q | 60 days | Economic activities of the population (ER) |
| Unemployment (ILO) | Q | | |

# Financial statistics

*Public finances*

| | | | |
|---|---|---|---|
| Revenues and expenditures of the State budget | M | 25 days | Report of the State Treasury (Finance Ministry) |

*Monetary statistics*

| | | | |
|---|---|---|---|
| Money supply | M | 30 days | Bulletin of the National Bank of Ukraine (NBU) (B) |
| Foreign currencies exchange rates | M | 30 days, | Web page of the NBU |
| Interest rates on loans and deposits, reserve ratio etc. | daily | 1 day | |

| | | | |
|---|---|---|---|
| IFS (claims on the central government, NBU's international reserves etc.) | M | 60 days | Bulletin of the National Bank of Ukraine (B) (NBU data), International Financial Statistics (B) (IMF) |
| *Balance of payments statistics* | | | |
| Merchandise exports and imports, CIF | M | 45 days | Volumes of exports and imports (EI) |
| Exports and imports of goods and services, FOB | Q | 75 days | Balance of payments (B) (NBU) |
| Foreign investments | | | |

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